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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	3976US (98-0063)
First Inventor or Application Identifier	David A. Cathey
Title	CORDLESS COMPUTER KEYBOARD WITH ILLUMINATED KEYS
Express Mail Label No.	EL500248241US

jc781 U.S. PTO 09/540000 04/06/00

jc545 U.S. PTO 09/540000 04/06/00

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: Assistant Commissioner for Patents, Box Patent Application, Washington, DC 20231

1. [X] * Fee Transmittal Form *(e.g., PTO/SB/17)* *(Submit an original, and a duplicate for fee processing)*
2. [X] Specification [Total Pages 14] *(preferred arrangement set forth below)*
   - Descriptive title of the Invention
   - Cross References to Related Applications
   - Statement Regarding Fed sponsored R & D
   - Reference to Microfiche Appendix
   - Background of the Invention
   - Brief Summary of the Invention
   - Brief Description of the Drawings *(if filed)*
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure
3. [X] Drawing(s) *(35 U.S.C. 113)* [Total Sheets 2]
4. Oath or Declaration [Total Pages 1]
   a. [X] Newly executed (original or copy)
   b. [ ] Copy from a prior application (37 C.F.R. § 1.63(d)) *(for continuation/divisional with Box 17 completed)* ***[Note Box 5 below]***
      i. [ ] DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).
5. [ ] Incorporation By Reference *(useable if Box 4b is checked)* The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered to be part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. [ ] Microfiche Computer Program *(Appendix)*
7. Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all necessary)*
   a. [ ] Computer Readable Copy
   b. [ ] Paper Copy (identical to computer copy)
   c. [ ] Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

8. [X] Assignment Papers (cover sheet & document(s))
9. [X] 37 C.F.R.§3.73(b) Statement *(when there is an assignee)* [X] Power of Attorney
10. [ ] English Translation Document *(if applicable)*
11. [X] Information Disclosure Statement (IDS)/PTO-1449 [X] Copies of IDS Citations
12. [ ] Preliminary Amendment
13. [X] Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
14. [ ] * Small Entity Statement(s) *(PTO/SB/09-12)* [ ] Statement filed in prior application, Status still proper and desired
15. [ ] Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
16. [ ] Other: .....

* *A new statement is required to be entitled to pay small entity fees, except where one has been filed in a prior application and is being relied upon.*

17. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in a preliminary amendment:*

[ ] Continuation [ ] Divisional [ ] Continuation-in-part (CIP) of prior application No: _____/_____

Prior application information: Examiner _____ Group / Art Unit: _____

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PATENT
Attorney Docket 3976US (98-0063)

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Express Mail Mailing Label Number: EL500248241US

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APPLICATION FOR LETTERS PATENT

for

CORDLESS COMPUTER KEYBOARD WITH ILLUMINATED KEYS

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CORDLESS COMPUTER KEYBOARD WITH ILLUMINATED KEYS

BACKGROUND OF THE INVENTION

Field of the Invention: This invention relates to computer keyboards. More specifically, the present invention relates to remote computer keyboards using either luminescent keys or a lighted keyboard for improved viewing in a dark room.

State of the Art: The computer industry has been using remote keyboards for a number of years. Such keyboards typically employ a transmitter, operating within a narrow band of the electromagnetic spectrum, which communicates with a receiver directly coupled to the central processing unit. Signals received from the keyboard are translated into standard keyboard signals understood by the central processing unit. The reason for using a remote keyboard is to remove the necessity of a connection cord between the keyboard and the computer console. A remote keyboard permits the user to submit typed data to the central processing unit anywhere within the range of the transmitter receiver combination. Although infrared band frequencies are generally used from communications between remote computers and central processing units, other frequency bands may also be used successfully. When infrared energy is used for communications between a central processing unit and a remote keyboard, the keyboard must generally remain in the same room and be in a direct line of sight with the infrared receiver. As illustrated in drawing FIG. 1, a typical conventional QWERTY-configured remote keyboard 100 is shown. The keyboard 100 is contained within an enclosure 101 having an upper portion 101A and a bottom portion 101B. A plurality of keys 102, which include keys for space, shift, control, backspace functions, are surrounded by the upper enclosure 101A. The keyboard 100 also has an infrared transmitter 103 which is coupled to the keys 102 via an encoder device (not shown). The keyboard 100 is interfaced to a central processing unit 105 via a receiver 104 and decoder device (not shown).

It is readily acknowledged that remote keyboards are generally difficult to use in dark rooms because it is difficult for a computer operator to identify individual keys in the dark. Although most computer users consider themselves typists, such users will

typically look at the keyboard when little used keys or key combinations must be pressed. The lack of complete standardization of keyboards exacerbates this problem. Certain multi key combinations, such as Ctrl, Alt, Del used for a warm boot operation require the operator to remove his hands from the normal typing position. Once the hands are removed, it may be somewhat difficult to return to the normal position and resume touch typing. Thus, it may be concluded that at least the average typist is at a disadvantage in a dark room because he cannot identify individual keys of the keyboard. Although cathode ray tube computer monitors generate sufficient light to illuminate the keyboard at close distances, as the operator distances himself from the monitor, the intensity of illumination drops rapidly.

Computer operators having a remote keyboard have the same problem as an individual attempting to make a telephone call on a telephone with an unlighted keypad. Fortunately, most telephone manufacturers now provide back-lighting for telephone keypads so that the numbers are identifiable in the dark. The same may be said for an individual attempting to utilize a television control device in a dimly lit room. Remote control manufacturers for various electronic devices have responded to this problem by providing control keys with identifying marking which fluoresce or luminesce.

Another example of a lighted viewing area is a back lit computer LCD screen which is used extensively in portable PC computers. Portable LCD computer screens without back lighting are difficult to view under normal lighting conditions, and nearly impossible to view in a dark room. Portable computer manufacturers use backlit computer LCD screens to allow users to see the LCD screens in dark and low light conditions.

SUMMARY OF THE INVENTION

The present invention overcomes the problem of computer users not being able to identify the keys of their cordless keyboard in a darkened room by lighting the keys. The present invention illustrates various alternatives to light the keys of a remote computer keyboard coupled via a remote transmitter to the computer console or microprocessor motherboard.

For a first embodiment of the invention, the identifying attribute, symbol, or symbols on each key top of the keyboard, whether it be a character symbol (e.g., one of the 94 standard printable characters) or a word or abbreviated word which represents one of the control characters (e.g., Esc, Tab, Caps Lock, Shift, Ctrl, Alt, Backspace, Enter, etc.) is formed from luminescent material. When the luminescent material is exposed to bright light in the visible or ultraviolet spectrum, electrons within the material are excited to orbitals of higher energy. When the light exposure is terminated, the electrons gradually decay to lower-energy orbitals, thereby releasing light in the visible spectrum. The luminescent symbols allow the user to view the letters on the computer keys in the dark room. After the luminescent effect has diminished to the point where the symbols are no longer discernable, they may be recharged by further exposure to light. Alternatively, the key attributes (i.e., character symbols, words and abbreviations) on the key caps may be formed from a translucent plastic material in which tritium is embedded. Tritium, which has a half-life of about 12.5 years, emits low-energy beta particle radiation. The radiation is of sufficiently low energy that it may be easily blocked by the material in which the tritium is embedded.

For a second embodiment of the invention that is very similar to the first, the key caps themselves are molded from luminescent material, while the symbols are formed from contrasting black or dark-colored non-luminescent material.

A third embodiment of the invention utilizes fiber optics to convey light from at least one low-power source, such as a light-emitting diode to each of the various key caps, each of which is molded from a translucent material. The symbols on the key caps are of a color which contrasts with that of the key caps. Black letters on light colored translucent key caps are the preferred combination. For this embodiment, a single light source contained within the keyboard enclosure is connected to a plurality of optical fiber strands, preferably made of transparent plastic or glass. Each of these optical fiber strands is routed so that light emitting therefrom is directed to a single key top. A single light source may be utilized for all keys, or multiple light sources may be utilized. Greater energy efficiency will be obtained by using fewer light sources than there are keys. The light source is powered by a chemical electrical power source such as a battery

or multiple dry cells. The same power source may be used to power the keyboard-to-computer communication link, whether it use infrared radiation or electromagnetic radiation in another frequency band. Alternatively, separate chemical-based energy sources may be used to power the lighting feature and the communication link. When the light source is switched on, the optical fibers transmit a portion of the light generated by the source to the various, effectively lighting the symbols on the key faces with background lighting.

Yet another embodiment of the present invention for backlighting a keyboard is to use a very thin transparent plastic or glass projector pane which is positioned beneath the key caps of the keyboard. At least one light source, such as an LED or an incandescent bulb is focused on the edge of the pane. When the light source is switched on, light from the source is transmitted within the projector pane and is reflected upwardly to the key caps by angled walls of apertures within the pane. The keyboard keys are made of a semi-transparent or translucent material such as a clear or translucent plastic, glass or an equivalent type of transparent material. Because the keys are light-transmissive, the light is visible through the key caps. As the symbols are of a color which contrasts with the key cap material, the symbols are readily identifiable in dim lighting conditions.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

FIG. 1 is a perspective view of a conventionally configured cordless keyboard;

FIG. 2 is a perspective view of key caps having identifying symbols formed from a luminescent or radioactive material;

FIG. 3 is a perspective view of key caps formed from a luminescent material and having contrasting symbols formed thereon;

FIG. 4 is a cut-away side view of a cordless computer keyboard having key caps illuminated by a battery-powered light source via optical fiber strands; and

FIG. 5 is a cut-away side view of a cordless computer keyboard having key caps illuminated by a battery-powered light source via a projector pane.

DETAILED DESCRIPTION OF THE INVENTION

As it readily recognized that the symbols on non-illuminated key caps of a cordless computer may be difficult to identify under dim lighting conditions, the present invention provides various embodiments for keyboards having illuminated key caps.

Referring once again to drawing FIG. 1, the present invention may be incorporated in a conventional-appearing cordless keyboard. Under bright lighting conditions, the keyboard of the present invention may appear completely conventional by outward appearances.

Referring now to drawing FIG. 2, a first embodiment of the invention employs key caps 102 on which the identifying attribute, whether it be a character symbol 201 (e.g., one of the 94 standard printable characters) or a word or abbreviated word which represents one of the control characters (e.g., Esc, Tab, Caps Lock, Shift, Ctrl, Alt, Backspace, Enter, etc.) is formed from luminescent material. Luminescent materials are well known in the art, having been used for decades on clock and watch dials. The luminescent material may be printed on the upper surface of each key cap, or it may be incorporated in the key cap during the molding process. When a luminescent material is exposed to bright light in the visible or ultraviolet spectrum, electrons within the material are excited to orbitals of higher energy. When the light exposure is terminated, the electrons gradually decay to lower-energy orbitals, thereby releasing light in the visible spectrum. The luminescent symbols allow the user to view the letters on the computer keys in the dark room. After the luminescent effect has diminished to the point where the symbols are no longer discernable, they may be recharged by further exposure to light. Alternatively, the key attributes (i.e., character symbols, words and abbreviations) 201 on the key caps may be formed from a translucent plastic material in which tritium is embedded. Tritium, which has a half-life of about 12.5 years, emits low-energy beta particle radiation. The radiation is of sufficiently low energy that it may be easily blocked by the material in which the tritium is embedded.

Depicted in drawing FIG. 3 is a second embodiment of the invention that is similar to the first. For this embodiment, at least an upper portion 301 of each key caps 102 is formed from luminescent material, while the symbols 302 are formed or printed from contrasting black or dark-colored non-luminescent material.

A third embodiment shown in drawing FIG. 4 utilizes optical fiber strands 401 to distribute a portion of the light emitted by a single light source 402 to multiple key caps 102, which are molded from translucent material. Certain aspects of the keyboard 400 are of conventional design. The keyboard enclosure 101 is comprised of a bottom portion 101B and a top portion 101A. An electromagnetic transmitter 103, which is attached to the rear of the enclosure 101, is coupled to a printed circuit board 403. A resilient switch button 404 is attached to the circuit board 403 beneath each key cap 102. When a key cap 102 is depressed, the button beneath that key cap is temporarily deformed, making a closed circuit and sending a decoded signal to the transmitter 103. Both the circuit board 403 and the switch button 404 have apertures through which the optical fiber strands 401 may pass. Each of these optical fiber strands 401 is routed so that light emitting therefrom is directed to a single key top. A single light source may be utilized for all keys, or multiple light sources may be utilized. Greater energy efficiency will be obtained by using fewer light sources than there are keys. The light source is powered by a chemical electrical power source such as a battery or multiple dry cells (not shown). The same power source may be used to power the keyboard-to-computer communication link, whether it use infrared radiation or electromagnetic radiation in another frequency band. Alternatively, separate chemical-based energy sources may be used to power the lighting feature and the communication link. When the light source is switched on, the optical fibers transmit a portion of the light generated by the source to the various, effectively lighting the symbols on the key faces with background lighting.

A fourth embodiment of the invention is depicted in drawing FIG. 5. A laminar transparent plastic or glass projector pane 501 which is positioned beneath the key caps of the keyboard. At least one light source 502, such as an LED or an incandescent bulb is focused on the edge of the pane. When the incandescent light source or LED is switched on, the light is transmitted within the projector pane and is reflected upwardly to the key caps by angled reflective walls 504 of apertures 505 within the pane 501. The keyboard key caps 102 are made of a semi-transparent or translucent material such as a clear or translucent plastic, glass or an equivalent type of transparent material. Because the keys are light-transmissive, the light is visible through the key caps. As the symbols are of a

color which contrasts with the key cap material, the symbols are readily identifiable in dim lighting conditions. In order to prevent light from escaping from the edges of the pane 501, the edges may be plated with a reflective coating 506.

Although only several embodiments of the cordless computer keyboard with illuminated keys are described herein, it will be obvious to those having ordinary skill in the art that changes and modifications may be made thereto without departing from the scope and the spirit of the invention as hereinafter claimed.

CLAIMS

What is claimed is:

1. A remote computer keyboard comprising:

an enclosure member;

a printed circuit board positioned in said enclosure member;

a plurality of depressible key switch devices arrayed above said printed circuit board;

a key cap mounted atop each switch device, each key cap having at least one identifying graphic symbol formed on an upper surface thereof; and

illumination apparatus illuminating at least one graphic symbol on each key cap.

2. The remote computer keyboard of claim 1, wherein said plurality of depressible key switch devices include a switch for a space function, a switch for a shift function, and a switch for a control function.

3. The remote computer keyboard of claim 1, wherein said illumination apparatus includes luminescent material embedded within each key cap.

4. The remote computer keyboard claim 1, wherein said illumination apparatus includes luminescent material forming each symbol.

5. The remote computer keyboard of claim 1, wherein said illumination apparatus includes tritium embedded within each symbol.

6. The remote computer keyboard of claim 1, wherein said illumination apparatus includes at least one battery-powered light source providing illumination to multiple key caps using optical fiber strands, each key cap of said key caps partially formed from light-transmissible material.

7. The remote computer keyboard of claim 1, wherein said illumination apparatus includes:

at least one battery-powered light source; and

a projector pane positioned beneath a plurality of key caps, said projector pane having an edge for receiving light from said light source and having apertures which direct the light from within the pane to each of said key cap of said plurality of key caps.

8. A remote computer keyboard comprising:

an enclosure member;

a printed circuit board positioned in said enclosure member;

a plurality of depressible key switch devices arrayed above said printed circuit board; and

a key cap mounted atop each switch device, each key cap having luminescent material embedded within and having at least one identifying graphic symbol formed thereon.

9. The remote computer keyboard of claim 8, wherein the symbol or symbols on each key cap is identifiable under bright lighting conditions and identifiable for a period of time in non-bright lighting conditions when luminescent material luminesces.

10. A remote computer keyboard comprising:

an enclosure member;

a printed circuit board positioned in said enclosure member;

a plurality of depressible key switch devices arrayed above said printed circuit board; and

a key cap mounted atop each switch device, each key cap having at least one identifying graphic symbol formed from luminescent material on an upper surface thereof.

11. A remote computer keyboard comprising:

an enclosure member;

a printed circuit board positioned in said enclosure member;

a plurality of depressible key switch devices arrayed above said printed circuit board; and

a key cap mounted atop each switch device, each key cap having at least one identifying graphic symbol formed from material embedded with tritium.

12. A remote computer keyboard comprising:

an enclosure member;

a printed circuit board positioned in said enclosure member;

a plurality of depressible key switch devices arrayed above said printed circuit board;

a key cap mounted atop each switch device, each key cap having a central portion formed from light transmissible material and having at least one identifying graphic symbol formed on said central portion;

a chemical source of electrical power;

at least one light source powered by said chemical source of electrical power; and

at least one optical fiber strand directing light from said light source to each key cap.

13. The remote computer keyboard of claim 12, wherein each optical fiber strand associated with a key cap extends through an aperture within said circuit board beneath a key cap.

14. The remote computer keyboard of claim 13, wherein a key cap is not attached to an optical fiber strand.

15. A remote computer keyboard comprising:

an enclosure member;

a printed circuit board positioned in said enclosure member;

a plurality of depressible key switch devices arrayed above said printed circuit board;

a key cap mounted atop each switch device, each key cap having a central portion formed from light transmissible material and having at least one identifying graphic symbol formed on said central portion;

a chemical source of electrical power;

at least one light source powered by said chemical source of electrical power; and

a projector pane positioned beneath at least two key caps of said plurality of key caps, said projector pane having an edge for receiving light from said light source and

having apertures which direct the light from within the pane to each of said plurality of key caps.

16. The remote computer keyboard of claim 15, wherein a portion of each aperture is covered with a reflective coating.

17. The remote computer keyboard of claim 16, wherein said projector pane is positioned beneath said printed circuit board.

18. The remote computer keyboard of claim 16, wherein each aperture is positioned directly beneath a key cap.

19. A remote computer keyboard comprising:

an enclosure member;

a chemical source of electrical power;

a transmitter mounted on said enclosure, said transmitter powered by said chemical source of electrical power;

an insulative material layer covered with circuit traces, said insulative material layer being positioned in said enclosure, said circuit traces being coupled to said transmitter;

a plurality of depressible key switch devices arrayed above said insulative material layer;

a key cap mounted atop each switch device, each key cap having at least one identifying graphic symbol formed on a surface thereof; and

illumination apparatus for making the identifying the at least one graphic symbol on each key cap.

20. The remote computer keyboard of claim 19, wherein said illumination apparatus includes luminescent material embedded within a portion of each key cap.

21. The remote computer keyboard of claim 19, wherein said illumination apparatus includes luminescent material forming each symbol.

22. The remote computer keyboard of claim 19, wherein said illumination apparatus includes tritium embedded within each symbol.

23. The remote computer keyboard of claim 19, wherein said illumination includes at least one light source powered by said chemical source of electrical power which provides illumination to multiple key caps through optical fiber strands, each key cap of said plurality of key caps at least partially formed from light-transmissible material.

24. The remote computer keyboard of claim 19, wherein said illumination apparatus includes:

at least one light source powered by said chemical source of electrical power; and

a projector pane positioned beneath a plurality of key caps, said projector having an edge for receiving light from said light source and having an edge for receiving light from said light source and having apertures which direct the light from within the projector pane to each key cap of said plurality of key caps.

ABSTRACT OF THE DISCLOSURE

A remote keyboard has keys which are illuminated for identification under dim motherboard. For a first embodiment of the invention, the identifying symbol or symbols on each key top of the keyboard is formed from luminescent material. Alternatively, the symbol or symbols on each key top are formed from a translucent material in which tritium is embedded. Tritium, which has a half-life of about 12.5 years, emits low-energy beta particle radiation. The radiation, which is of sufficiently low energy that it may be blocked by a piece of paper, may be rendered innocuous by placing clear plastic radiation shields over each key top. For a second embodiment of the invention, the key caps themselves are molded from luminescent material, while the symbols are formed from contrasting black or dark-colored non-luminescent material. A third embodiment of the invention utilizes fiber optics to convey light from at least one low-power source, such as a light-emitting diode to each of the various key caps, each of which is molded from a translucent material. The symbols on the key caps are of a color which contrasts with that of the key caps. Black letters on light colored translucent key caps are the preferred combination. Another embodiment of the present invention for backlighting a keyboard is to use a transparent projector pane positioned beneath translucent or transparent key caps on which identifying symbols are printed. Light from a light source at the edge of the projector pane is transmitted throughout the pane. An aperture beneath each key top projects light up through the key caps, illuminating the symbols.

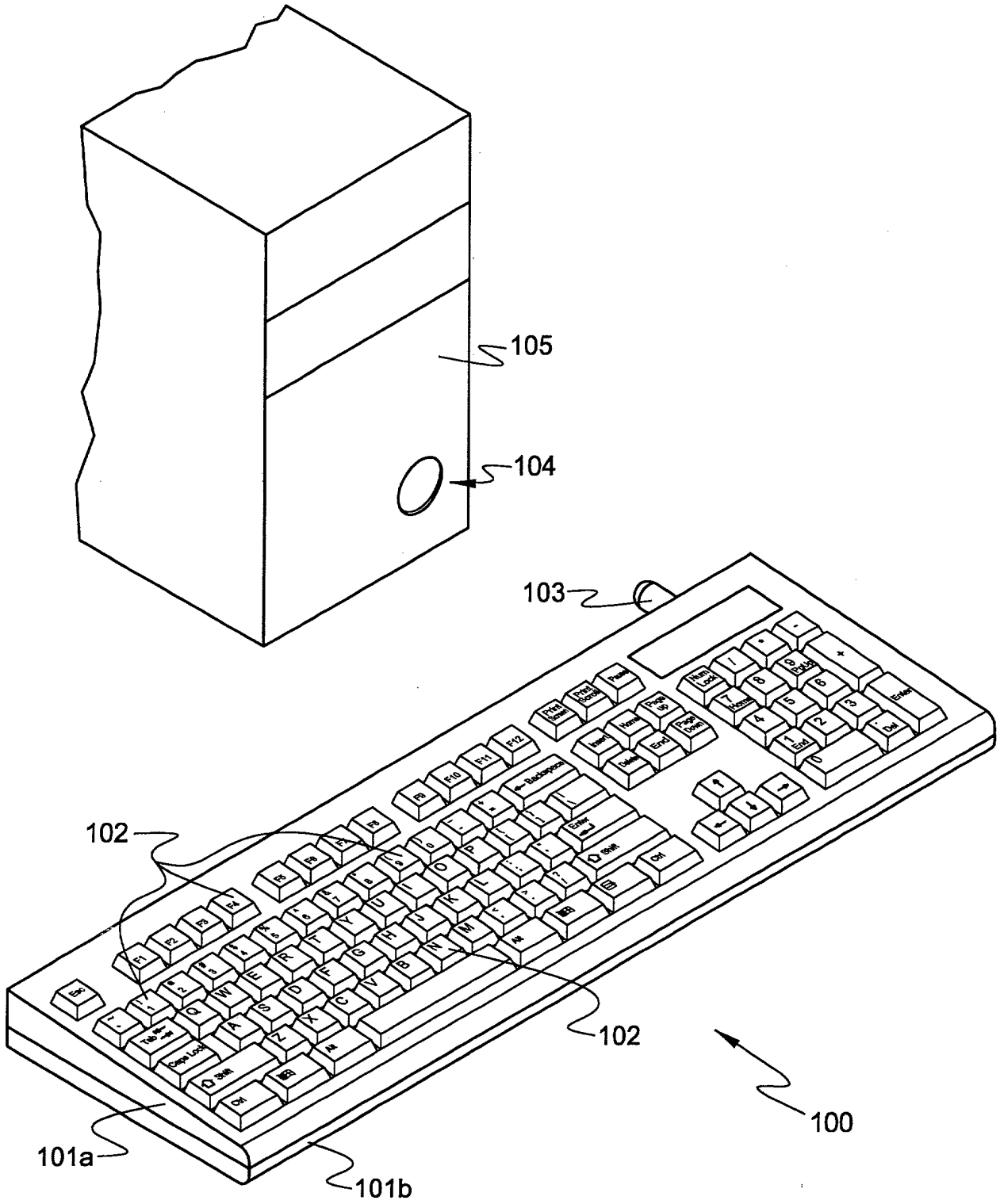

Fig.1

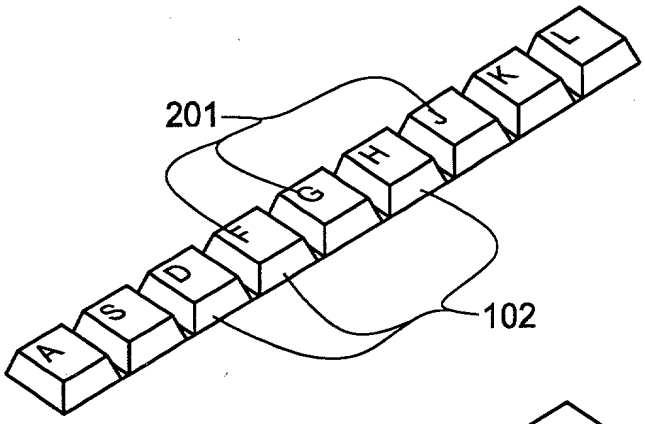

Fig.2

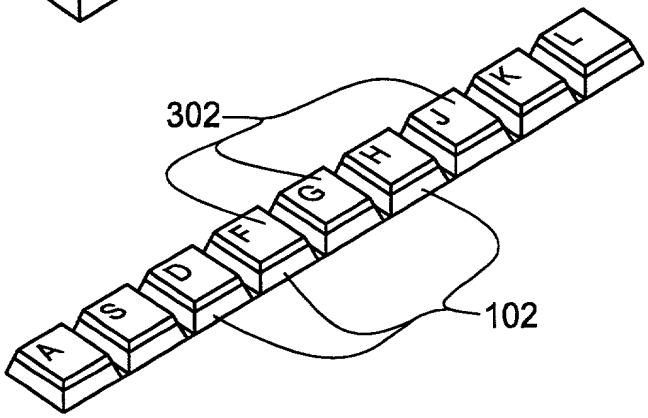

Fig.3

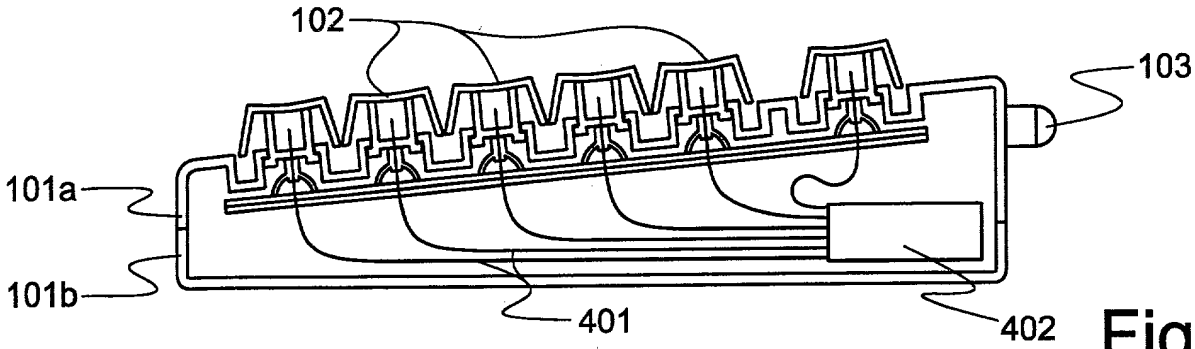

Fig.4

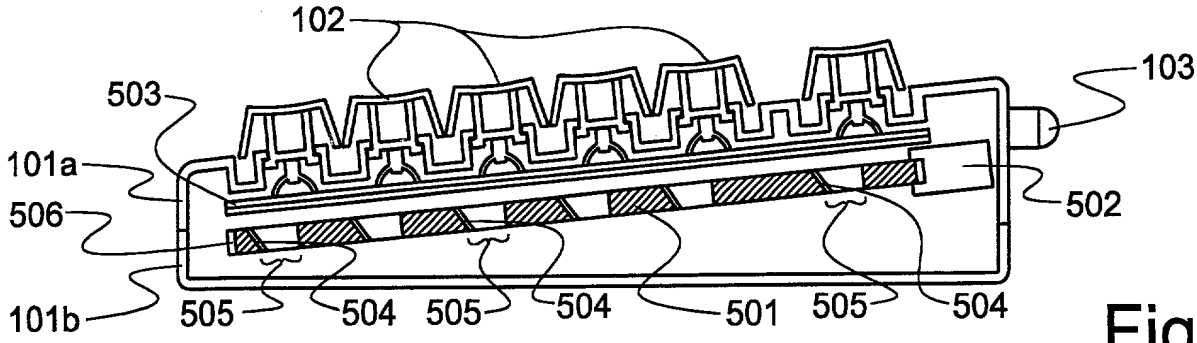

Fig.5

DECLARATION FOR PATENT APPLICATION (WITH POWER OF ATTORNEY)

As an inventor named below or on any attached continuation page, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled CORDLESS COMPUTER KEYBOARD WITH ILLUMINATED KEYS, the specification of which (check one):

- ☒ is attached hereto.
- ☐ was filed on _____ as United States application serial no. _____ and was amended on _____.
- ☐ was filed on _____ as PCT international application no. _____ and was amended under PCT Article 19 on _____.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to the patentability of the subject matter claimed in this application, as "materiality" is defined in Title 37, Code of Federal Regulations § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate or § 365(a) of any PCT international application(s) designating at least one country other than the United States of America listed below and on any attached continuation page and have also identified below and on any attached continuation page any foreign application for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America having a filing date before that of the application(s) on which priority is claimed.

Prior foreign/PCT application(s):

			Priority Claimed	
(number)	(country)	(day/month/year filed)	Yes	No
(number)	(country)	(day/month/year filed)	Yes	No

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) or § 365(c) of PCT international application(s) designating the United States of America listed below and on any attached continuation page and, insofar as the subject matter of each of the claims of this application is not disclosed in any such prior application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations § 1.56 which became available between the filing date of such prior application and the national or PCT international filing date of this application:

(application serial no.)	(filing date)	(status - pending, patented or abandoned)
(application serial no.)	(filing date)	(status - pending, patented or abandoned)

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

(provisional application no.)	(filing date)

I hereby appoint the following Registered Practitioners to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

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Kerry D. Tweet, Reg. No. P-45,959	Michael L. Lynch, Reg. No. 30,871	Lia M. Pappas, Reg. No. 34,095

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Salt Lake City, Utah 84110

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole inventor: David A. Cathey
Inventor's signature _____ Date 3-29-2000
Residence: Boise, Idaho
Citizenship: U.S.A.
Post Office Address: P.O. Box 4762, Boise, ID 84711

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	David A. Cathey	**Examiner:**	Unknown
Serial No.:	Not yet assigned	**Group Art Unit:**	Unknown
Filed:		**Attorney Docket No.:**	3976US (98-0063)
Title:	CORDLESS COMPUTER KEYBOARD WITH ILLUMINATED KEYS		

POWER OF ATTORNEY BY ASSIGNEE AND CERTIFICATE UNDER 37 CFR § 3.73(b)

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

MICRON TECHNOLOGY, INC., assignee of the entire right, title and interest by assignment from the inventor(s) in the above-identified application, hereby appoints the following attorneys and agents:

David V. Trask, Reg. No. 22,012	William S. Britt, Reg. No. 20,969	Thomas J. Rossa, Reg. No. 26,799
Laurence B. Bond, Reg. No. 30,549	Joseph A. Walkowski, Reg. No. 28,765	James R. Duzan, Reg. No. 28,393
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Kenneth C. Booth, Reg. No. 42,342	Samuel E. Webb, Reg. No. 44,394	Kerry D. Tweet, Reg. No. P-45,959
Eleanor V. Goodall, Reg. No. 35,162	Michael L. Lynch, Reg. No. 30,871	Lia M. Pappas, Reg. No. 34,095

as its attorneys with full power of substitution to prosecute this application and all applications claiming filing date priority therefrom and to transact all business in the U.S. Patent and Trademark Office in connection therewith.

The above-identified assignee hereby elects, pursuant to 37 C.F.R. § 3.71, to conduct the prosecution of the above-identified patent application to the exclusion of the inventor(s).

A chain of title from the inventor(s) of the above-identified patent application to the above-identified assignee is shown:

[] In an assignment recorded in the U.S. Patent and Trademark Office at Reel , Frame .

[X] In an assignment filed herewith for recordation, a true copy of which is attached hereto.

The undersigned has reviewed the above-identified assignment and, to the best of his knowledge and belief, title is in the above-identified assignee.

The undersigned further avers that he is empowered to make and sign the foregoing certification on behalf of the above-identified assignee, and to take the action set forth herein on its behalf.

Please direct all communications regarding the above-identified application to:

James R. Duzan,
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Respectfully Submitted,

MICRON TECHNOLOGY, INC.

Date: 3-31-00

By: _____
Michael L. Lynch, Esq.
Reg. No. 30,871
Chief Patent Counsel,
MICRON TECHNOLOGY, INC.

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